REMARKS

In response to the Office Action dated , claims 28, 38 and 45 are amended. Claims 2, 3, 5, 9-22, 29, 34, 35, 37-40 and 45 are now active in this application. No new matter has been added.

The allowability of the subject matter of claims 9-22 and 37 is noted with appreciation.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 38-40 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. In support of this position, the Examiner maintains that "the second portions including at least one portion different from any one of the first portions" is ambiguous and is not fully disclosed in the specification. Claim 38 as amended now becomes clear. That is, "second electronic data" represents "a first set of uncrossed lines", and "third electronic data" represents "a second set of uncrossed lines". The "second electronic data" and the "third electronic data" correspond to the first portions and the second portions on the surface of the three-dimensional form model, respectively. Further, at least one of the second portions is different from any of the first portions. In other words, at lease one of the second set of uncrossed lines is located at a position different from any of the first set of uncrossed lines. In the embodiment, deletion, movement and addition of circular longitudes BCP_1, BCP_2, ..., BCP_m is explained in detail, and the movement and addition correspond to claim 38. The circular longitudes before the movement or addition are examples of the first set of uncrossed lines. It is clear that a circular longitude after the movement or addition exists at a position different from any of the

circular longitudes. Thus, claim 38 is supported in the specification in the degree that a person skilled in the art can understand.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 102 AND § 103

Claims 2, 5, 29 and 45 are rejected under 35 U.S.C. §103(a) as being unpatentable over Matsuura (U.S. Patent No. 5,615,318).

Claims 29 and 45 as amended has a following limitation, "in either of before and after the modification, any one of the plurality of lines do not cross with any one of the remaining ones of the plurality of lines". The Examiner states that Matsuura, col. 20, lines 3-7, 61-76 and 18-23 teaches "modifying the lines in response to a user instruction that includes an adding or a movement of a line so that the plurality of lines still corresponding to contour of the model." However, the portions pointed out by the Examiner describe a processing called as internal line generation. The internal lines AAA and BBB are generated to cross the plurality of lines. Therefore, this does not agree with the above limitation added to claims 29 and 45. That is, claims 29 and 45 are different from and are not obvious over Matsuura.

Claim 3 is rejected under 35 U.S.C. §103(a) as being unpatentable over Matsuura (U.S. Patent No. 5,615,318) in view of Letcher, Jr. (U.S. Patent No. 5,627,949).

Claims 34 and 35 are rejected under 35 U.S.C. §103(a) as being unpatentable over Matsuura (U.S. Patent No. 5,615,318) in view of Sato et al. (U.S. Patent No. 5,754,680).

Both Letcher Jr. and Sato do not teach the elements not disclosed in Matsuura.

Claims 38-40 are rejected under 35 U.S.C. §103(a) as being unpatentable over Sato et al. (U.S. Patent No. 5,754,680).

The rejections are respectfully traversed.

The Examiner maintains that "Claim 38 does not explicitly disclose generating a plurality of data through a plurality of stages, instead, claim 38 just disclosed generating the second and third data on different portions of a model."

However, Applicants strongly disagree with the Examiner's contention. Claim 38 recites, *inter alia*:

> receiving a ***first electronic data of a three-dimensional model of an object*** which has been acquired on the object;
>
> ***generating a second electronic data*** corresponding exactly to first portions on a surface of the three-dimensional model, wherein a capacity of the second electronic data is smaller than that of the first electronic data; and
>
> ***generating, from the second electric data, a third electronic data*** corresponding exactly to second portions on the surface of the three-dimensional model, the second portions including at least one portion different from any one of the first portions... (Emphasis added)

Since the third electronic data ***is generating from*** the second electronic data, it is clearly inherent that the second electronic data must be generated before the third electronic data. Furthermore, since claim 38 is a computer-implemented method of processing an electronic data representing a three-dimensional mode, that the received first electronic data is of a three-dimensional model of an object, and the second electronic data is generated to correspond exactly to first portions ***on a surface of the three-dimensional model***, it is clearly inherent that first electronic data must be received so that that there can be first portions ***on a surface of the three-dimensional model***, and that second electronic data is generated after receiving the first electronic data since it must correspond exactly to [the] first portions that are on a surface of the three-

dimensional mode. Such corresponds could not exist if the first electronic data is of a three-dimensional model of an object has not been received.

Consequently, claim 38 requires the third electronic data to be generated not directly from the first electronic data, ***but from the second electronic data***. Sato et al. does not disclose or suggest generation of data through a plurality of stages. Thus, independent claim 38, and dependent claims 39 and 40, are patentable over Sato et al.

CONCLUSION

Accordingly, it is urged that the application, as now amended, is in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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VERSION WITH MARKINGS SHOWING CHANGES MADE

IN THE SPECIFICATION:

Please amend the specification as follows:

At page 10, the last paragraph bridging pages 10 and 11:

Fig. 4 shows fitting the Beizier curves (step S1 in Fig. 3). First, a Bezier curve group BCG1 consisting of circular longitudes BCP_1, BCP_2, ..., [$BCPM_m$,] $\underline{BCP_m}$ and linear meridians BCM_1, BCM_2, ..., BCM_n is generated for the three-dimensional form model TM1 according to the three-dimensional form data TD1 (step S11). Figs. 9A, 9B and 9C illustrate steps from generation to modification of Bezier curves, Fig. 10 shows Bezier curves of a closed surface, and Fig. 11 shows an enlarged part of a longitude. As shown in Figs. 9A and 10, each longitude BCP_1 - BCP_m has n Bezier segments BSG existing on a plurality of planes aligned at equal distances between them and vertically to an axis AX1 and forming a circle or a polygon so as to include the three-dimensional form model TM1 with the center AX1. Each meridian BCM_1 - BCM_n consists of (m-1) Bezier segments parallel to the axis AX1 and intersecting with each longitude BCP_m. Each BSG is a Bezier curve of third order having four control points including two end points. The Bezier curve group BCG1 consisting of these m*n Bezier curves forms a cylindrical clos3ed surface CCS1 virtually.

IN THE CLAIMS:

Please amend the claims as follows:

29. (Five Times Amended) A computer-implemented method of generating three-dimensional form data to be used in a computer apparatus, the method comprising the steps of:

obtaining an electronic data of a three-dimensional form model;

generating a plurality of lines along a surface of the three-dimensional form model, the plurality of generated lines corresponding exactly to contours of the three-dimensional form model; and

modifying the plurality of generated lines in response to a user instruction, wherein

the user instruction includes at least one of an addition of at least one line in the plurality of lines, a movement of at least one of the lines, and a deletion of at least one of the lines, [and]

after the modification, the plurality of lines still correspond exactly to contours of the three-dimensional form model, and.

in either of before and after the modification, any one of the plurality of lines do not cross with any one of the remaining ones of the plurality of lines.

38. (Three Times Amended) A computer-implemented method of processing an electronic data representing a three-dimensional model, the method comprising the steps of:

receiving a first electronic data of a three-dimensional model of an object which has been acquired on the object;

generating a second electronic data that represents a first set of uncrossed lines corresponding exactly to first portions on a surface of the three-dimensional model, wherein a capacity of the second electronic data is smaller than that of the first electronic data; and

generating, from the second electric data, a third electronic data that represents a second set of uncrossed lines corresponding exactly to second portions on the surface of the three-dimensional model, the second portions including at least one portion different from any one of the first portions, wherein

a capacity of the third electronic data is smaller than that of the first electronic data.

45. (Three Times Amended) A computer-implemented method of generating three-dimensional form data to be used in a computer apparatus, the method comprising the steps of:

obtaining an electronic data of a three-dimensional form model;

generating a plurality of lines along a surface of the three-dimensional form model, the plurality of generated lines corresponding exactly to contours of the three-dimensional form model; and

modifying the plurality of generated lines in response to a user instruction, wherein

the user instruction includes at least one of an addition of at least one line in the plurality of lines, and a movement of at least one of the lines, [and]

after the modification, the plurality of lines still correspond exactly to contours of the three-dimensional form model, and

in either of before and after the modification, any one of the plurality of lines do not cross with any one of the remaining ones of the plurality of lines.